Making a New Battery Pack for a Canon Scoopic

A Scoopic battery is made up of (10) 1.2V AA size cells.

The original factory batteries use NiCAD cells. An original Scoopic battery shell can easily be re-celled with newer, more high-capacity, no-memory-effect NiMH cells by anyone with a little soldering skill.

There are also any number of DIY methods one could devise to create your own battery pack with various degrees of tinkering. There seems to be a number of Scoopics out there with no batteries, or folks who could use an extra. Here is about as simple a method as possible:

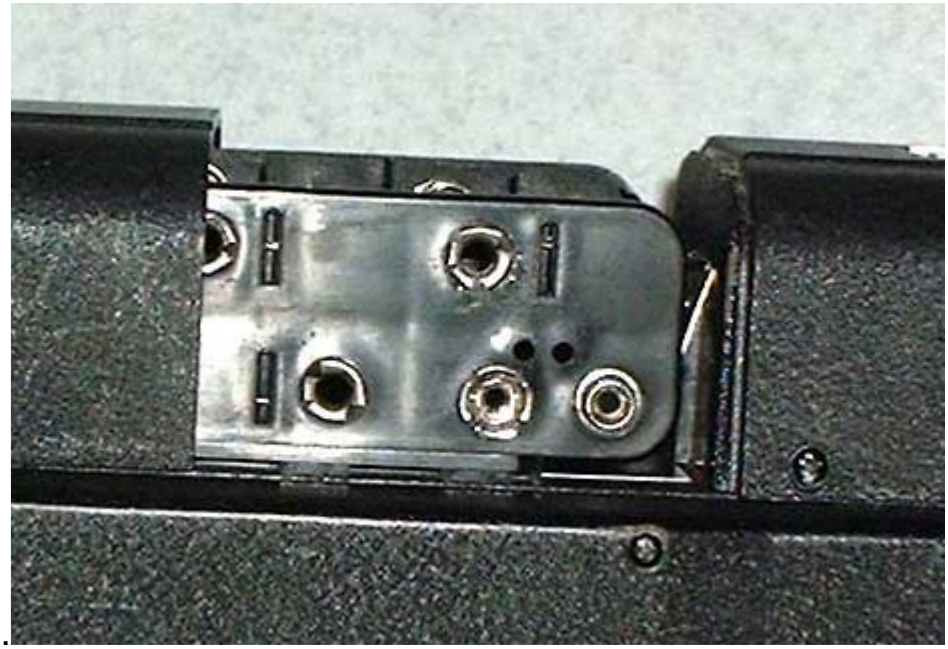
I discovered that the '10 Cell "AA" Battery Holder' sold by Thomas Distributing fits neatly in the Scoopic battery compartment. The battery holders are very hard toi find from the front of the Thomas website. The page is here. Thomas is also a good source for cells, and for the charger you'll want to charge the new battery.

Here is the holder. Note the 9V battery clip type terminals on the near upper right:

Unless you are some kind of heat-sink perfect master, it is impossble to solder a lead to these terminals without melting the plastic of the holder and ruining it.

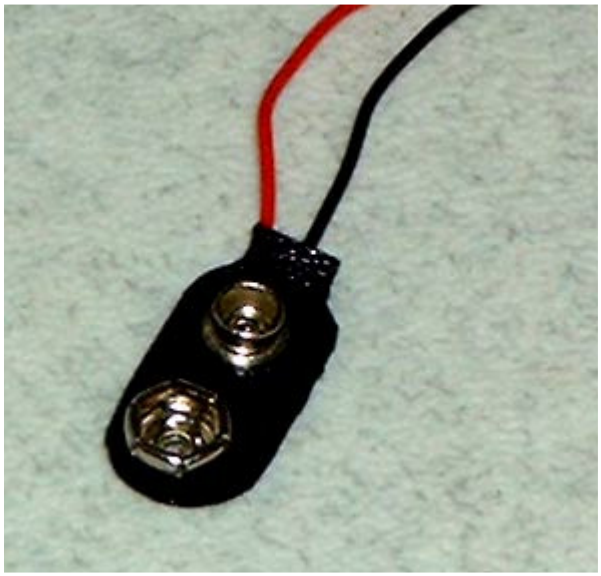
CAVEAT: i've noticed with other size battery holders that units holding the same number of cells from different sources may be slightly different sizes (along the length of the cell barrel, leaving more or less room to compress the spring). So you might possibly find 10XAA holders that will be a tad bigger than the one I have here, which might not fit inside the Scoopic. Thomas could even change their source for all i know. Anyway, the one I have is 58mm (2 - 5/16") wide, not including the terminals.

Here is the holder inside the Scoopic battery compartment, the terminals placed at front and bottom. This orientation is dictated by the fact that the battery cover cross section is keystone shaped, wider at the bottom



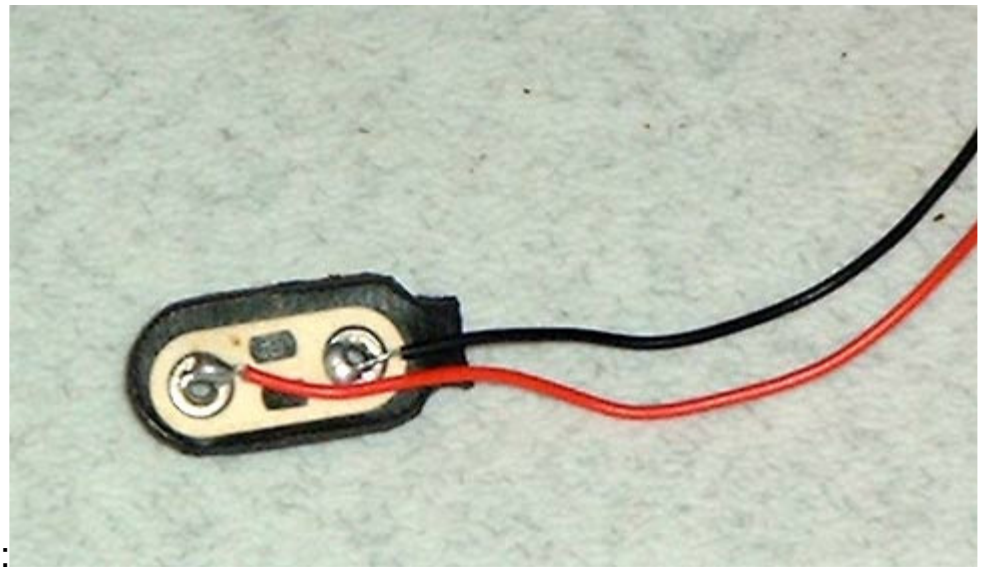
Note also that the battery holder is just a bit shorter than the space, and does not depress the battery contacts in the camera.

Here is a standard replacement 9V lead clip:



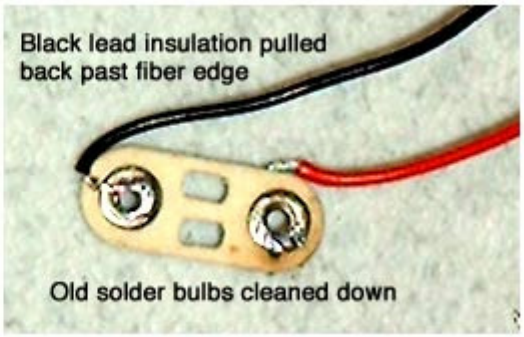
If you attach this to the holder, it adds to the width. You can still get the Scoopic battery cover to close, but a bit of force is required. If you're careful sliding the cover on this might not be a problem, but there is a potential to damage the clip, and possibly cause a short. So I decided to modify my clip.

The depth of the clip includes the fact that the wires run over the top of the clip, and are covered by a plastic shield. Here is the clip with the top of the shield peeled


away:

I addressed making the clip thinner by:
* Peeling off the other side of the shield with the aid of an X-acto knife.
* Pulling the insulation of the black wire back a bit so only the thickness of the bare wire sits atop the fiber piece. Then I filed down the solder bulb where the black lead attaches a bit.
* Removing the red lead, stripping back the insulation, and soldering it around the base of the connector on the other side. This may not be necessary. Again, the main thing is to get the thickness of the wire insulation out of the way, so you could probably just pull back the insulation on the red wire and stretch it out over the nearest edge on the fiber piece, file down the solder bulb and be okay.

Anyway, my mod-ed clip looks like this:



With the back covered with electrical tape for insulation, the battery cover still now slides on without force with the clip in place.

All that remains now is to attach the leads from the clip to the power terminals of the Scoopic. Two possibilities:

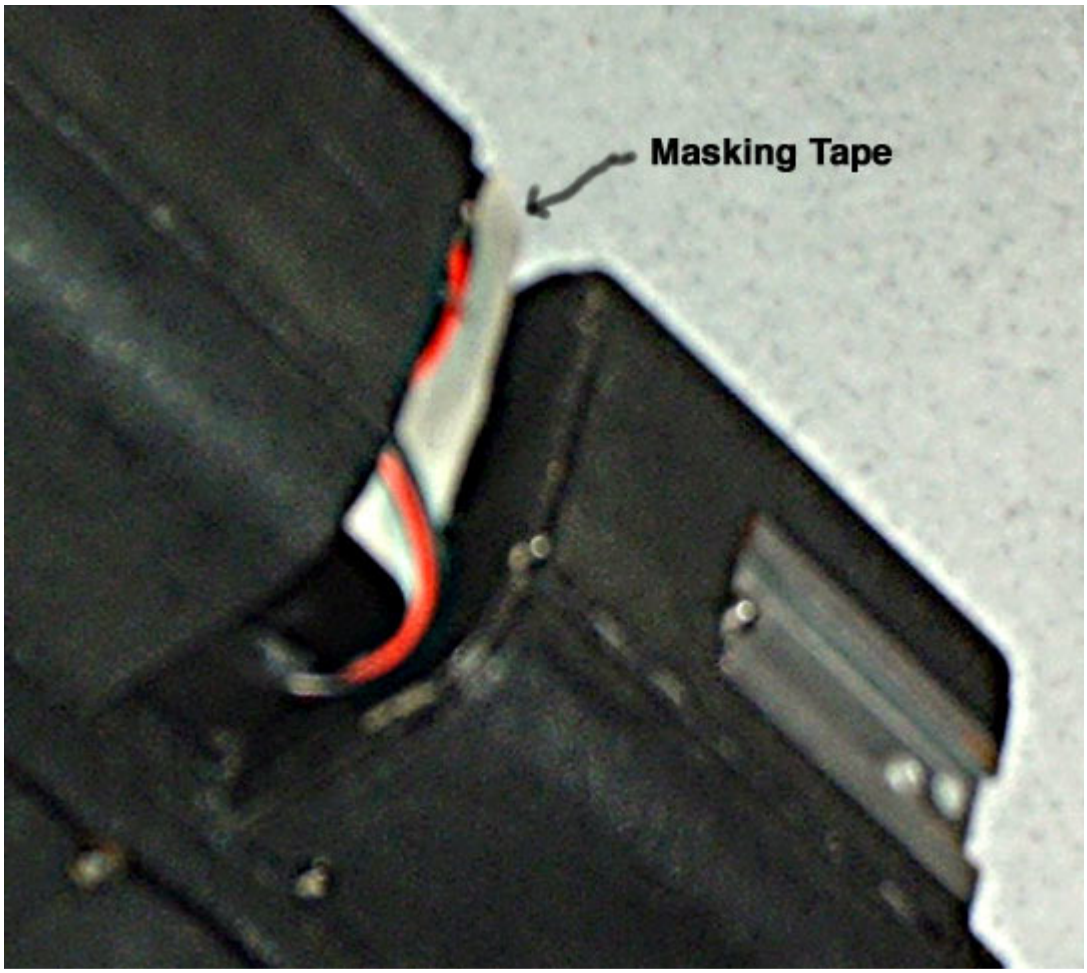
1. If you will be using only this type of battery with the camera, the easist thing is just to solder the leads to the battery contacts in the camera. The best way to do

this would be to drill a small hole (1/16") in the top of the contacts, thread the leads through and then apply solder. This could be removed relatively easily later to return the camera to the use of regular batteries. By attaching the wires at the top of the contacts on the camera, the holes will be sbove the points where a Canon battery will touch them. The downside of this method is whether our modified clip will hold up to many connect/disconnect cycles before the wires or the little fiber piece break.

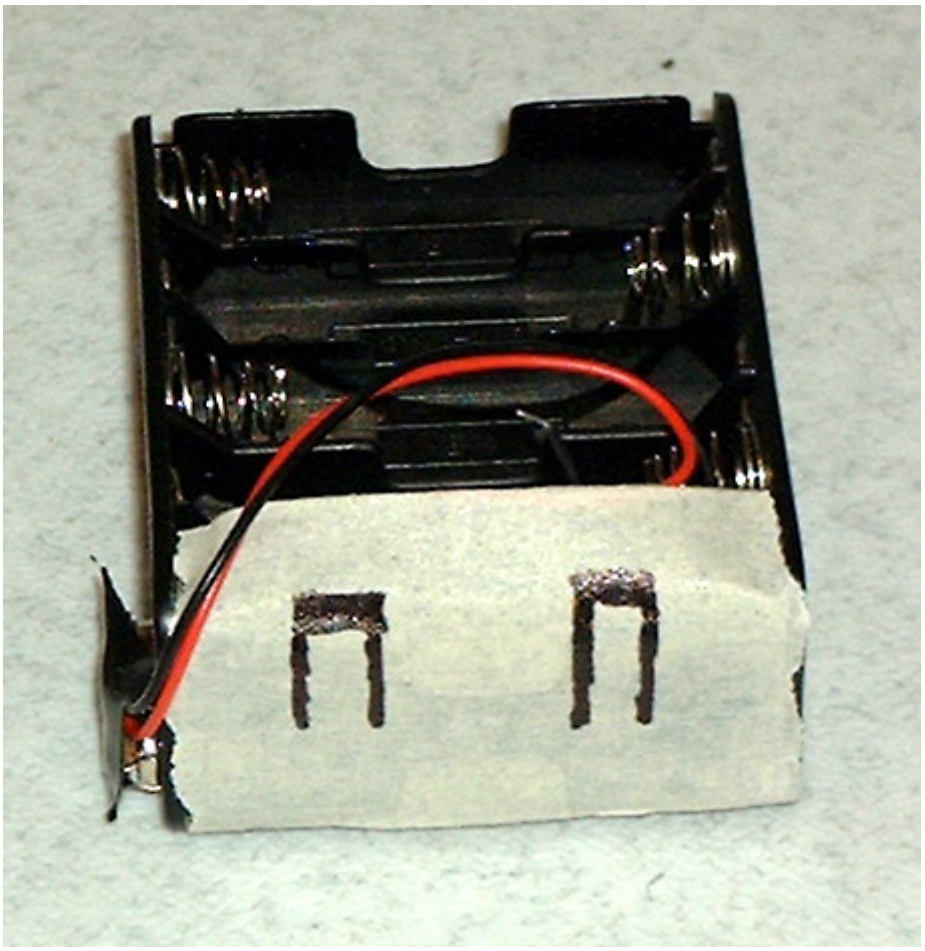
To make permanent attachment of leads to camera, drill small holes (1/16") near top of contacts, strip back 1/4" of insulation from the leads, thread through holes and solder.

2. Fashion contacts on the battery holder that will engage the contacts in the camera. I made contacts from stubby sheet-metal screws, and attached them to the front of the battery holder.

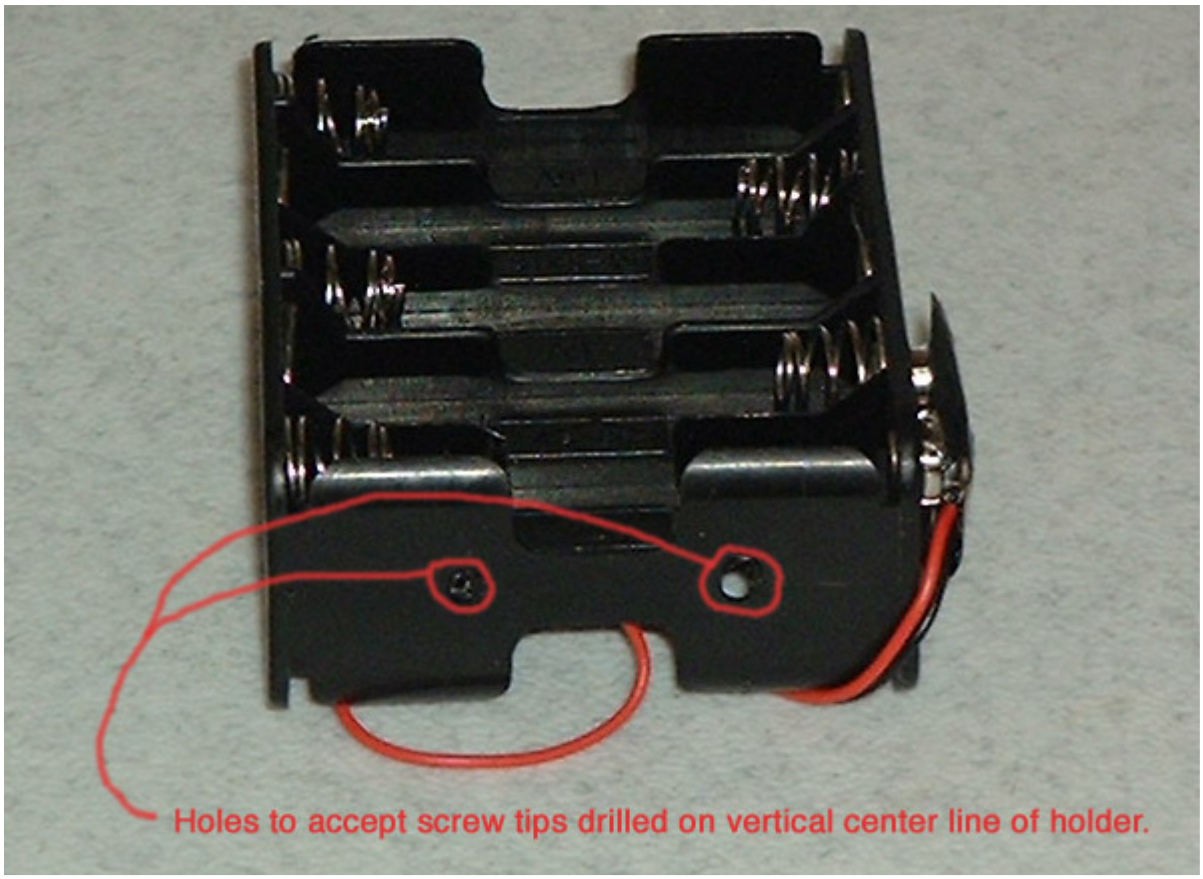
First, I covered the front of the holder with masking tape, then positioned it in place inside the camera with the clip attached and the cover closed over the back of the clip. (Pic out of focus, but you get the idea.)



Then I marked the position of the contacts on the masking paper with a sharpie. They are slightly off-center in relation to the holder, as the clip pushes the assembly toward the left side of the camera.

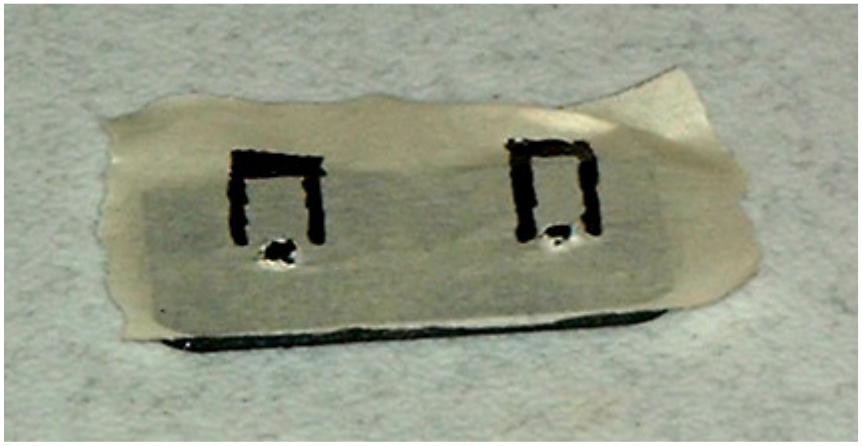


I drilled 1/8" holes in the center of the contact positions, along the midline of the holder. These will allow the end of the screws to extend. By putting the holes on the centerline, the screw tips will fit between the canisters of the cells.

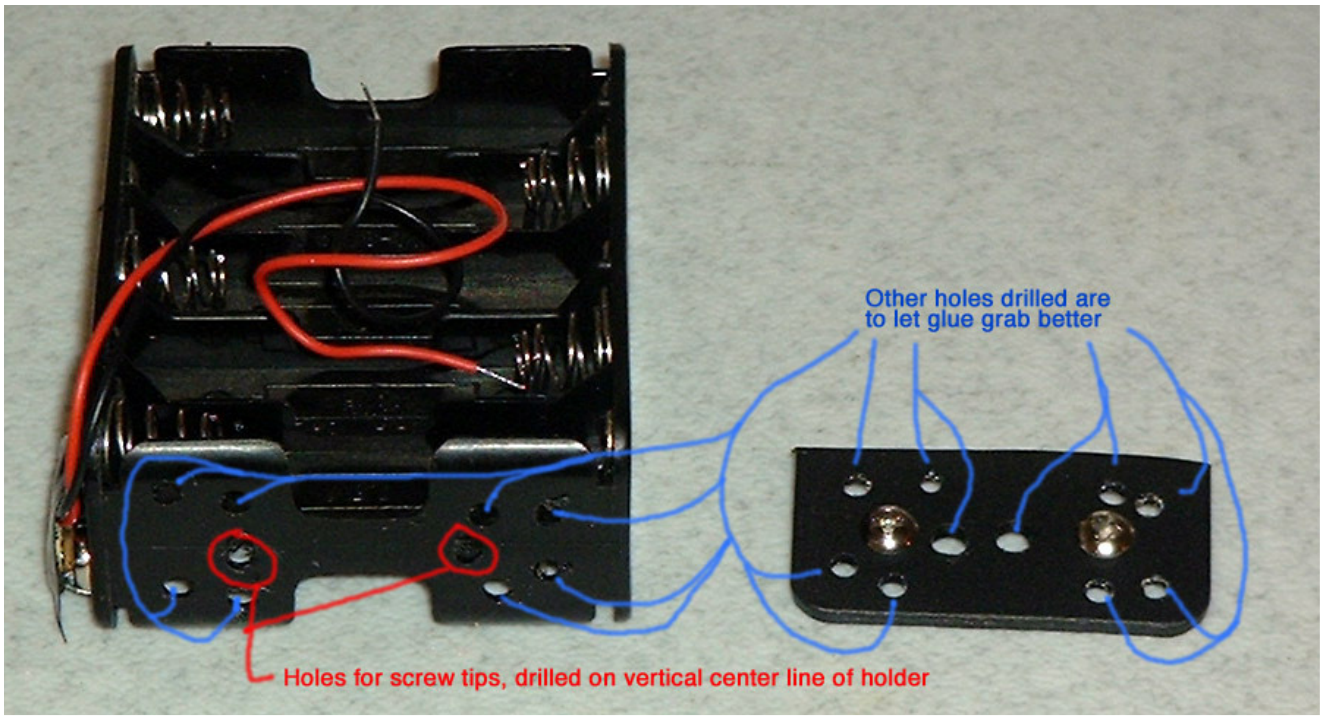


Instead of attempting to attach the screws directly to the holder, I decided to glue a small piece of screap plastic in between -- for added strength and to take up the slack between the holder and the contacts I noted above.

I peeled the masking tape off the holder and used it as a template to drill holes in the shim. I made 1/16" holes to give the screws plenty of plastic to bite.



Then I drilled seveal other 1/8" holes in both the shim and the holder to provide bite points for the glue (you don't want these holes to line up with one another, so don't drill them through with the two pieces lined up.)



Then, with the screws sticking through the shim acting as a guide, I glued the shim to the holder using a polyurethane (Gorilla-type) glue.

After the glue dried, I trimmed the leads, stripped back the insulation, backed off the contact screws a bit, wound the bare wire around a couple times, tightened the screws, and trimmed the excess wire.

The finished battery pack, with cells, looks like this.

A note on cells. They keep packing more power in AA NiMH cells. These, as you can see, are 1800mAh. Thomas is now selling 2300mAh cells. The higher the mAh rating, the longer the pack should run the camera. Even 1800 mAh cells have a lot more power than the original Scoopic NiCADs. I recelled a friends Scoopic battery with 1800mAh batteries, and he was very happy with the run time. I wouldn't go with anything lower at this point, though. Thomas sells several brands. I think they're all pretty similar, and all decent, and I wouldn't pay more for any particular brand. I think I would avoid generics. Don't get anything that doesn't have the mAh rating listed (pig in a poke, may be older, less powerful cells). Expect to pay $2-$3 per cell, depending on mAh rating.

You'll need a charger rated to handle 12V NiMH batteries to juice this up. NiCAD chargers (e.g. original Scoopic charger) have somewhat different electronics, and aren't recommended for NiMH. They *might* work, but... The standard all-purpose NiMH pack charger is a Maha C-777, also available from Thomas, about $45. The Maha C-777 plus, about $80, will also charge Lithium Ion packs.